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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/820,367

04/07/2004

Michael Geffen

04206/LH

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12/08/2004

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EXAMINER

BARTH, VINCENT P

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 12/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/820,367

Applicant(s)

GEFFEN ET AL.

Examiner

Vincent P. Barth

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2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 0404, 1104.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Referring to Claim 1, the limitation, “comparing said height profiles *or* checking each height profile according to predetermined criteria *or both*” (emphasis added) renders the claim indefinite. It appears that the intended meaning of the claim is that the individual height profiles of each bump are compared to a calibration standard. However, using such construction, it is not clear what purpose the term “or both” serves, since “comparing said height profiles ... according to predetermined criteria” and “checking each height profile according to predetermined criteria” would ordinarily be construed as equivalent. Accordingly, the Examiner respectfully requests that Applicants either provide an appropriate explanation of the claim limitation, preferably citing to portions of the Specification and/or Drawings, or provide an appropriate amendment to the claim. However, the claim has been discussed below as it may best be understood, and as if drafted as, “comparing the individual height profiles of each bump to a predetermined calibration standard”.

4. Referring to Claims 2-8, the fourth paragraph of 35 U.S.C. §112 provides that, “A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim

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to which it refers". Accordingly, Claims 2-8 inherit the §112 second paragraph rejection of Claim 1, and are therefore rejected as well. However, Claims 2-8 have also been discussed below as each may best be understood.

5. Referring to Claim 9, the limitation, "comparing bumps height or checking bumps height profile or both" renders the claim indefinite. Said limitation does not make clear whether the individual bump heights/profiles are compared against each other, or if each bump height/profile is compared to a predetermined calibration standard. Accordingly, the Examiner respectfully requests that Applicants either provide an appropriate explanation of the claim limitation, preferably citing to portions of the Specification and/or Drawings, or provide an appropriate amendment to the claim. However, the claim has been discussed below as it may best be understood, and as if drafted as, "comparing the individual height profiles of each bump to a predetermined calibration standard".

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-7 and 9 are rejected under 35 U.S.C. §102(b) as being anticipated by Worster, et al., U.S. Pat. No. 5,963,314 (5 Oct. 1999).

8. Referring to Claims 1, 3, 7 and 9, Worster discloses a system for inspecting wafers, in which a confocal height measurement sub-unit determines the 3D profile of such wafers (col. 4, lns. 6-12; Fig. 4). Worster discloses that the system comprises a computer controller 304 for operating a stage in the X-Y 218 and Z planes 217 and a fine Z stage control 216 (col. 8, lns. 53-54; col. 11, ln. 3-5; col. 12, lns. 38-48). Worster discloses that the confocal height measurement system operates at least perpendicularly to the wafer (Fig. 2). Worster discloses that the computer 214 translates the intensity information from the confocal laser sub-system into 3D height information (col. 8, lns. 42-52; and col. 9, lns. 1-41), and outputs such data on display 215 (see Fig. 4). Worster discloses that the computer 214 creates and stores a library of wafer 3D profiles actually measured, and may compare measured wafers with a library of typical defects (col. 12, lns. 48-62). Worster discloses that maps of the wafer may be created, including a master map, with each height point corresponding to the X-Y coordinates on the wafer (col. 9, lns. 1-41).

9. Referring to Claims 2 and 4-6, Worster discloses that a conventional white light microscope system may be integrated to operate concurrently (col. 10, lns. 19-20) with the laser

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confocal 3D measurement system, and may use a conventional digital CCD camera (i.e., a second camera) for imaging the wafer surface (col. 9, ln. 66 to col. 10, ln. 37). Such CCD cameras would be understood by those in the art to be an array camera or a line scan camera.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Worster, et al., U.S. Pat. No. 5,963,314 (5 Oct. 1999).

12. Referring to Claim 8, Worster discloses a system for inspecting wafers, in which a confocal height measurement sub-unit determines the 3D profile of such wafers (col. 4, lns. 6-12; Fig. 4). Worster does not explicitly identify all of the particular 3D structures on such wafers that might be mapped, such as the height profile of a conductor. However, since such structures are commonly found on wafers during fabrication, those of ordinary skill in the art would find the presence of the features recited in Claim 8 to be implicit in the Worster disclosure.

Moreover, such recitation of wafer features represents a non-limiting statement of intended use, which does not distinguish the invention over the prior art. Claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. See MPEP§2114, citing In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). “[A]pparatus claims

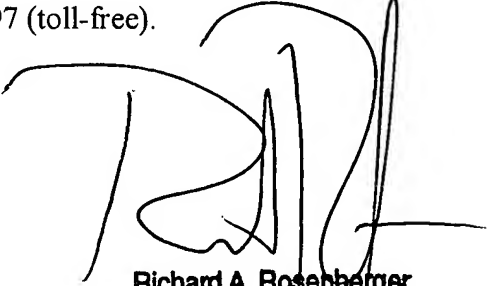
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cover what a device *is*, not what a device *does*.” Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990, emphasis in original).

Accordingly, the limitations reciting particular features found on the wafer do not distinguish over the prior art, and would have been obvious to those skilled in the art at the time of the invention.

### **CONCLUSION**

13. Applicants' Claims 1-9 are rejected based on the reasons set forth above.
14. Any inquiries concerning this communication from the Examiner should be directed to Vincent P. Barth, whose telephone number is 571-272-2410, and who may be ordinarily reached from 9:00 a.m. to 5:30 p.m., Monday through Friday. The fax number for the group before final actions is 703-872-9306.
15. If attempts to reach the Examiner prove unsuccessful, the Examiner's supervisor is Gregory J. Toatley, Jr., who may be reached at 571-272-2800, ext. 77.
16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Richard A. Rosenberger  
Primary Examiner